CLAIMS

1. An image-processing method for a printing device which has a recording head in which a plurality of printing elements are provided and drives the printing elements based on multi-level image data to form an image on an recording medium, comprising the steps of:

selecting a gamma correction parameter according to printing characteristics of the recording head; and

forming an image on the recording medium based on the selected gamma correction parameter.

2. A printing device which has a recording head in which a plurality of printing elements are provided and drives the printing elements based on multi-level image data to form an image on an recording medium, comprising:

a selection unit selecting a gamma correction parameter according to printing characteristics of the recording head; and

an image forming unit forming an image on the recording medium based on the gamma correction parameter selected by the selection unit.

3. An image-processing method for a printing device which has a recording head in which a plurality of printing

elements are provided and drives the printing elements based on multi-level image data to form an image on an recording medium, comprising the steps of:

selecting a gamma correction parameter according to lightness characteristics of a printed image of the recording head; and

forming an image on the recording medium based on the selected gamma correction parameter.

4. A printing device which has a recording head in which a plurality of printing elements are provided and drives the printing elements based on multi-level image data to form an image on an recording medium, comprising:

a selection unit selecting a gamma correction parameter according to lightness characteristics of a printed image of the recording head; and

an image forming unit forming an image on the recording medium based on the gamma correction parameter selected by the selection unit.

5. An image-processing method for a printing device which has a recording head in which a plurality of printing elements are provided and drives the printing elements based on multi-level image data to form an image on an recording medium, comprising the steps of:

selecting a gamma correction parameter according to optical density characteristics of a printed image of the recording head; and

forming an image on the recording medium based on the selected gamma correction parameter.

6. A printing device which has a recording head in which a plurality of printing elements are provided and drives the printing elements based on multi-level image data to form an image on an recording medium, comprising:

a selection unit selecting a gamma correction parameter according to optical density characteristics of a printed image of the recording head; and

an image forming unit forming an image on the recording medium based on the gamma correction parameter selected by the selection unit.

7. An image-processing method for an ink-jet printing device which has an ink-jet recording head in which a plurality of nozzles are provided and discharges ink drops from the plurality of nozzles based on multi-level image data to form an image on an recording medium, comprising the steps of:

selecting a gamma correction parameter according to discharging characteristics of the ink-jet recording head; and

forming an image on the recording medium based on the selected gamma correction parameter.

8. An ink-jet printing device which has an ink-jet recording head in which a plurality of nozzles are provided and discharges ink drops from the plurality of nozzles based on multi-level image data to form an image on an recording medium, comprising:

a selection unit selecting a gamma correction parameter according to discharging characteristics of the ink-jet recording head; and

an image forming unit forming an image on the recording medium based on the gamma correction parameter selected by the selection unit.

9. The ink-jet printing device according to claim 8 wherein the discharging characteristics of the ink-jet recording head are characteristics of an ink drop volume to an input gradation level.

10. The ink-jet printing device according to claim 8 wherein the discharging characteristics of the ink-jet recording head are characteristics of an ink drop velocity to an input gradation level.

11. An image-processing method for an ink-jet printing device which has an ink-jet recording head in which a plurality of nozzles are provided and discharges ink drops from the plurality of nozzles based on multi-level image data to form an image on an recording medium, comprising the steps of:

selecting a gamma correction parameter according to lightness of a printed image of the ink-jet recording head; and

forming an image on the recording medium based on the selected gamma correction parameter.

12. An ink-jet printing device which has an ink-jet recording head in which a plurality of nozzles are provided and discharges ink drops from the plurality of nozzles based on multi-level image data to form an image on an recording medium, comprising:

a selection unit selecting a gamma correction parameter according to lightness of a printed image of the ink-jet recording head; and

an image forming unit forming an image on the recording medium based on the gamma correction parameter selected by the selection unit.

13. The ink-jet printing device according to claim

12 wherein the gamma correction parameter is selected according to the lightness of the printed image to a plurality of gradation levels.

14. The ink-jet printing device according to claim 12 wherein the gamma correction parameter is selected according to the lightness of the printed image to one gradation level.

15. An image-processing method for an ink-jet printing device which has an ink-jet recording head in which a plurality of nozzles are provided and discharges ink drops from the plurality of nozzles based on multi-level image data to form an image on an recording medium, comprising the steps of:

selecting a gamma correction parameter according to an optical density of a printed image of the ink-jet recording head; and

forming an image on the recording medium based on the selected gamma correction parameter.

16. An ink-jet printing device which has an ink-jet recording head in which a plurality of nozzles are provided and discharges ink drops from the plurality of nozzles based on multi-level image data to form an image on an recording

medium, comprising:

a selection unit selecting a gamma correction parameter according to an optical density of a printed image of the ink-jet recording head; and

an image forming unit an image on the recording medium based on the gamma correction parameter selected by the selection unit.

17. The ink-jet printing device according to claim 16 wherein the gamma correction parameter is selected according to the optical density of the printed image to a plurality of gradation levels.

18. The ink-jet printing device according to claim 16 wherein the gamma correction parameter is selected according to the optical density of the printed image to one gradation level.

19. An ink-jet printing device which has a plurality of ink-jet recording heads in which a plurality of nozzles are provided for each ink-jet recording head and discharges ink drops of a plurality of colors from the plurality of nozzles of the plurality of ink-jet recording heads respectively based on multi-level image data to form a color image on an recording medium, each ink-jet recording

head comprising:

a selection unit selecting a gamma correction parameter of a corresponding color according to discharging characteristics of the ink-jet recording head.

20. An ink-jet printing device which has a plurality of ink-jet recording heads in which a plurality of nozzles are provided for each ink-jet recording head and discharges ink drops of a plurality of colors from the plurality of nozzles of the plurality of ink-jet recording heads respectively based on multi-level image data to form a color image on an recording medium, each ink-jet recording head comprising:

a selection unit selecting a gamma correction parameter of a corresponding color according to lightness of the corresponding color of a printed image of the ink-jet recording head.

21. An ink-jet printing device which has a plurality of ink-jet recording heads in which a plurality of nozzles are provided for each ink-jet recording head and discharges ink drops of a plurality of colors from the plurality of nozzles of the plurality of ink-jet recording heads respectively based on multi-level image data to form a color image on an recording medium, each ink-jet recording

head comprising:

a selection unit selecting a gamma correction parameter of a corresponding color according to an optical density of the corresponding color of a printed image of the ink-jet recording head.

22. The ink-jet printing device according to any of claims 8, 16 and 19-21 wherein the selected gamma correction parameter is displayed.

23. The ink-jet printing device according to any of claims 19-21 wherein the selected gamma correction parameters of the plurality of colors are displayed respectively.

24. A printer driver of an ink-jet printing device which carries out the image-processing method according to any of claims 7, 11 and 15 wherein the image data is outputted to the ink-jet printing device according to the selected gamma correction parameter.

25. The printer driver according to claim 24 wherein the printer driver comprises a unit setting the selected gamma correction parameter to the ink-jet printing device.

26. An image processing apparatus which communicates with an ink-jet printing device, comprising:

a requesting unit requesting a gamma correction parameter or a kind thereof to the ink-jet printing device;

a receiving unit receiving the gamma correction parameter or the kind thereof from the ink-jet printing device; and

an image processing unit adjusting a gamma correction parameter based on the gamma correction parameter or the kind thereof received by the receiving unit.

27. The ink-jet printing device according to any of claims 8, 12, 16 and 19-21 wherein the ink-jet printing device comprises a unit storing a plurality of gamma correction parameters, and one of the plurality of the gamma correction parameters is selected.

28. The ink-jet printing device according to any of claims 19-21 wherein the ink-jet printing device comprises a unit storing a plurality of gamma correction parameters of the plurality of colors, and one of the plurality of the gamma correction parameters is selected.

29. The ink-jet printing device according to any of claims 19-21 wherein the gamma correction parameters are

selected such that a difference in lightness between different printed images of the plurality of ink-jet recording heads for a same color is less than ±10.

30. The ink-jet printing device according to any of claims 19-21 wherein the ink-jet printing device comprises a unit storing the selected gamma correction parameters for the respective colors, and values of the selected gamma correction parameters for at least two colors are different.

31. The ink-jet printing device according to claim 30 wherein the ink-jet printing device comprises a unit setting a kind of the selected gamma correction parameter of each ink-jet recording head to the ink-jet printing device.

32. An image forming system including an image processing apparatus and an ink-jet printing device, the image processing apparatus comprising:

a requesting unit requesting a gamma correction parameter selection data to the ink-jet printing device;

a receiving unit receiving the gamma correction parameter selection data from the ink-jet printing device; and

an image processing unit selecting one of a plurality of gamma correction parameters based on the gamma correction parameter selection data received by the receiving

unit, and the ink-jet printing device comprising:

a storing unit storing the gamma correction parameter selection data; and

a transmitting unit transmitting the gamma correction parameter selection data to the image processing apparatus.

33. An image forming method of an image forming system including an image processing apparatus and an ink-jet printing device, the image forming method comprising the steps of:

requesting a gamma correction parameter selection data to the ink-jet printing device from the image processing apparatus;

creating the gamma correction parameter selection data by the ink-jet printing device;

transmitting the created the gamma correction parameter selection data to the image processing apparatus;

receiving the gamma correction parameter selection data from the ink-jet printing device by the image processing apparatus; and

selecting a gamma correction parameter based on the received gamma correction parameter selection data.

34. The image-processing method according to claim

1 or 3 wherein the recording head in which the plurality of printing elements are provided is a thermal recording head, the gamma correction parameter is selected according to gradation printing characteristics of the thermal recording head, and the image is formed on the recording medium based on the selected gamma correction parameter.

35. The printing device according to claim 2 or 4 wherein the recording head in which the plurality of the printing elements are provided is a thermal recording head, the selection unit selects the gamma correction parameter according to gradation printing characteristics of the thermal recording head, and the image forming unit forms the image on the recording medium based on the gamma correction parameter selected by the selection unit.